Coronavirus Facts & How to Protect Your Employees

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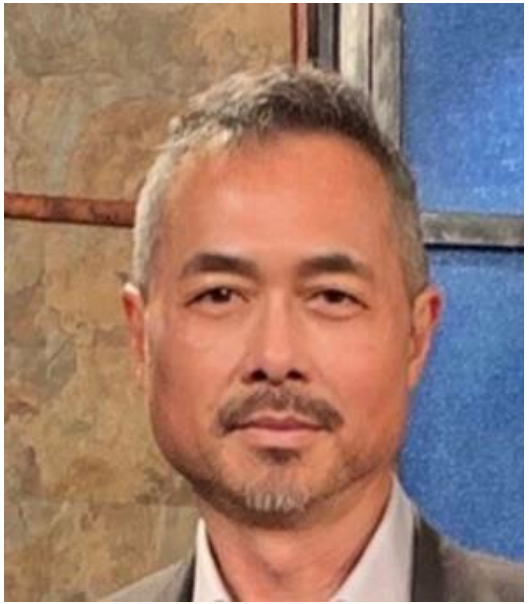

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Medical Primer on COVID-19

- What is the virus, how does it make us sick?
- Transmission, contagiousness
- Symptoms of infection
- Testing and treatment

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How Coronavirus Spreads

- COVID-19 is a new disease and **we are still learning how it spreads**, the severity of illness it causes, and to what extent it may spread in the United States.
- Person-to-person spread
- The virus is thought to spread mainly from person-to-person.
- Between people who are in close contact with one another (within about 6 feet).
- Through respiratory droplets produced when an infected person coughs or sneezes.
- These droplets can land in the mouths or noses of people who are nearby or possibly be inhaled into the lungs.

https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/how-covid-spreads.html

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Can someone spread the virus without being sick?

- People are thought to be most contagious when they are most symptomatic (the sickest).
- Some spread might be possible before people show symptoms; there have been reports of this occurring with this new coronavirus, but this is not thought to be the main way the virus spreads.

https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/how-covid-spreads.html

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Spread from contact with contaminated surfaces

- It may be possible that a person can get COVID-19 by touching a surface or object that has the virus on it and then touching their own mouth, nose, or possibly their eyes, but this is not thought to be the main way the virus spreads.

https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/how-covid-spreads.html

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CORRESPONDENCE

Aerosol and Surface Stability of SARS-CoV-2 as Compared with SARS-CoV-1

TO THE EDITOR: A novel human coronavirus that is now named severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (formerly called HCoV-19) emerged in Wuhan, China, in late 2019 and is now causing a pandemic.[1] We analyzed the aerosol and surface stability of SARS-CoV-2 and compared it with SARS-CoV-1, the most closely related human coronavirus.[2]

We evaluated the stability of SARS-CoV-2 and SARS-CoV-1 in aerosols and on various surfaces and estimated their decay rates using a Bayesian regression model (see the Methods section in the Supplementary Appendix, available with the full text of this letter at NEJM.org). SARS-CoV-2 nCoV-WA1-2020 (MN985325.1) and SARS-CoV-1 Tor2 (AY274119.3) were the strains used. Aerosols (<5 μm) containing SARS-CoV-2 ($10^{5.25}$ 50% tissue-culture infectious dose [$TCID_{50}$] per milliliter) or SARS-CoV-1 ($10^{5.75-7.00}$ $TCID_{50}$ per milliliter) were generated with the use of a three-jet Collison nebulizer and fed into a Goldberg drum to create an aerosolized environment. The inoculum resulted in cycle-threshold values between 20 and 22, similar to those observed in samples obtained from the upper and lower respiratory tract in humans.

Our data consisted of 10 experimental conditions involving two viruses (SARS-CoV-2 and SARS-CoV-1) in five environmental conditions (aerosols, plastic, stainless steel, copper, and cardboard). All experimental measurements are reported as means across three replicates.

SARS-CoV-2 remained viable in aerosols throughout the duration of our experiment (3 hours), with a reduction in infectious titer from $10^{3.5}$ to $10^{2.7}$ $TCID_{50}$ per liter of air. This reduction was similar to that observed with SARS-CoV-1, from $10^{4.3}$ to $10^{3.5}$ $TCID_{50}$ per milliliter (Fig. 1A).

SARS-CoV-2 was more stable on plastic and stainless steel than was SARS-CoV-1 ($10^{0.6}$ $TCID_{50}$ per milliliter of medium after 72 hours on plastic and from $10^{0.7}$ to $10^{0.6}$ $TCID_{50}$ per milliliter after 48 hours on stainless steel). The stability kinetics of SARS-CoV-1 were similar (from $10^{0.4}$ to $10^{0.7}$ $TCID_{50}$ per milliliter after 72 hours on plastic and from $10^{0.6}$ to $10^{0.6}$ $TCID_{50}$ per milliliter after 48 hours on stainless steel). On copper, no viable SARS-CoV-2 was measured after 4 hours and no viable SARS-CoV-1 was measured after 8 hours. On cardboard, no viable SARS-CoV-2 was measured after 24 hours and no viable SARS-CoV-1 was measured after 8 hours (Fig. 1A).

Both viruses had an exponential decay in virus titer across all experimental conditions, as indicated by a linear decrease in the $\log_{10}TCID_{50}$ per liter of air or milliliter of medium over time (Fig. 1B). The half-lives of SARS-CoV-2 and SARS-CoV-1 were similar in aerosols, with median estimates of approximately 1.1 to 1.2 hours and 95% credible intervals of 0.64 to 2.64 for SARS-CoV-2 and 0.78 to 2.43 for SARS-CoV-1 (Fig. 1C, and Table S1 in the Supplementary Appendix). The half-lives of the two viruses were also similar on copper. On cardboard, the half-life of SARS-CoV-2 was longer than that of SARS-CoV-1. The longest viability of both viruses was on stainless steel and plastic; the estimated median half-life of SARS-CoV-2 was approximately 5.6 hours on stainless steel and 6.8 hours on plastic (Fig. 1C). Estimated differences in the half-lives of the two viruses were small except for those on cardboard (Fig. 1C). Individual replicate data were noticeably "noisier" (i.e., there was more variation in the experiment, resulting in a larger standard error) for cardboard than for other surfaces (Fig. S1 through S5), so we advise caution in interpreting this result.

We found that the stability of SARS-CoV-2 was similar to that of SARS-CoV-1 under the ex-

Symptoms of Coronavirus

- These symptoms may appear **2-14 days after exposure** (based on the incubation period of MERS-CoV viruses).
- Fever
- Cough
- Shortness of breath
- **Older adults and people who have severe underlying medical conditions** like heart or lung disease or diabetes seem to be at higher risk for developing more serious complications from COVID-19 illness.
- When to Seek Medical Attention
- If you develop **emergency warning signs** for COVID-19 get **medical attention immediately**. Emergency warning signs include*:
  - Trouble breathing
  - Persistent pain or pressure in the chest
  - New confusion or inability to arouse
  - Bluish lips or face
  - Pulse oximeter

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COVID-19 Fatality Rate by COMORBIDITY:

*__Death Rat__e = (number of deaths / number of cases) = **probability of dying if infected by the virus** (%). This probability differs depending on pre-existing condition. The percentage shown below does **NOT represent in any way the share of deaths by pre-existing condition**. Rather, it represents, for a patient with a given pre-existing condition, the **risk of dying** if infected by COVID-19.

PRE-EXISTING CONDITION	DEATH RATE confirmed cases	DEA
Cardiovascular disease	**13.2%**	
Diabetes	**9.2%**	
Chronic respiratory disease	**8.0%**	
Hypertension	**8.4%**	
Cancer	**7.6%**	

Who should be tested

- Not everyone needs to be tested for COVID-19. Here is some information that might help in making decisions about seeking care or testing.
- Most people have mild illness and are able to recover at home.
- There is no treatment specifically approved for this virus.
- Testing results may be helpful to inform decision-making about who you come in contact with.

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BEACON HEALTH SYSTEM

Document last updated: 3/20/2020

Laboratory Testing Guidance for Patients with Suspected 2019 Novel Coronavirus (COVID-19)

Providers should use their discretion to consider testing appropriate patients, keeping in mind that swabs and viral transport medium are a scarce resource at this time. Most patients with confirmed COVID-19 have developed fever and/or symptoms of acute respiratory illness (e.g., cough, difficulty breathing).

Recommendations for testing (based on ISDH guidance March 18, 2020):

Highest Priority For Testing	Test Based On Provider Discretion	NOT RECOMMENDED TO TEST
Complete ISDH online testing requisition. https://redcap.isdh.in.gov/surveys/?s=WMKD7PHEPF **Link and instructions available on Beacon Covid-19 Intranet page.**	**Send test to private lab.** **Order and test through usual order process at your facility or call Beacon Covid-19 Hotline 855-523-2225 for instructions.**	**Symptomatic patients at risk for COVID-19, having direct contact with a COVID-19 patient or travel from a geographic area with community spread, should be advised to home isolate for 14 days after the onset of symptoms. Testing not recommended.**
Patient requiring hospitalization with fever and lower respiratory symptoms, constituting: Admission to the hospital due to complications of their acute respiratory illness.	Symptomatic older adults (age ≥ 65 years)	Symptomatic patients at low risk of complication. Testing not recommended.
Healthcare workers (inpatient, outpatient, nursing home, and other long-term service facilities) and EMS staff who provide direct patient care to at risk patients: Symptomatic with fever and lower respiratory symptoms and in their role has potential or unknown exposure to at risk patients.	Patients with chronic medical conditions and/or an immunocompromised state that may put them at higher risk for poor outcomes including: diabetes, heart disease, receiving immunosuppressive medications, chronic lung disease, chronic kidney disease	Asymptomatic individuals. Should not be tested.
Long-term care facility residents or prison/jail residents and staff (who have direct contact with patients or inmates): Symptomatic with fever and respiratory illness and otherwise no known COVID-19 contact.	Any patient the provider feels warrants testing.	
Persons experiencing homelessness: Symptomatic with fever and respiratory illness and otherwise no known COVID-19 contact.	Healthcare workers not tested by ISDH where return to work may be impacted.	

If patient identified as at risk for COVID-19, place patient in **minimum of Contact and Droplet isolation (with eye protection).** Patients with risk of aerosol generating procedures or in critical care status/dedicated COVID-19 unit should be placed in **Airborne & Contact Precautions.**

https://www.cdc.gov/coronavirus/2019-nCoV/hcp/clinical-criteria.html

People who are at higher risk for severe illness

- COVID-19 is a new disease and there is limited information regarding risk factors for severe disease. Based on currently available information and clinical expertise, older adults and people of any age who have serious underlying medical conditions might be at higher risk for severe illness from COVID-19.
- Based upon available information to date, those at high-risk for severe illness from COVID-19 include:
  - People aged 65 years and older
  - People who live in a nursing home or long-term care facility
  - Other high-risk conditions could include:
  - People with chronic lung disease or moderate to severe asthma
  - People who have serious heart conditions
  - People who are immunocompromised including cancer treatment
  - People of any age with severe obesity (body mass index [BMI] >40) or certain underlying medical conditions, particularly if not well controlled, such as those with diabetes, renal failure, or liver disease might also be at risk
  - People who are pregnant should be monitored since they are known to be at risk with severe viral illness, however, to date data on COVID-19 has not shown increased risk
  - Many conditions can cause a person to be immunocompromised, including cancer treatment, smoking, bone marrow or organ transplantation, immune deficiencies, poorly controlled HIV or AIDS, and prolonged use of corticosteroids and other immune weakening medications

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Joint Statement From The Indiana Board Of Pharmacy And The Medical Licensing Board Of Indiana

The Indiana Board of Pharmacy and the Medical Licensing Board of Indiana have recently received reports of prescriptions being used for hydroxychloroquine, chloroquine and azithromycin for prophylactic purposes in response to the COVID-19 outbreak. Concerns have been raised that this activity may lead to stockpiling of medication, inappropriate use and potential drug shortages for patients with a legitimate need. To protect the public health and safety, licensees are reminded of the following:

For Prescribers: To prevent drug shortages, the Board recommends the following:

- Prescribing hydroxychloroquine, chloroquine and azithromycin for COVID-19 prophylactic use is discouraged and not recommended by the Board.
- Prescribing hydroxychloroquine, chloroquine and azithromycin for family, friends and co-workers in anticipation of a COVID-19 related illness can significantly impact drug supplies and may lead to improper use. Prescribers should exercise caution and refrain from prophylactic prescribing in light of the Public Health Emergency.
- The Indiana Board of Pharmacy is suggesting that prescribers include the diagnosis code or diagnosis with the prescription. This may prevent calls from the pharmacy and prevent dispensing delays.
- Prescribers should consider limiting the amount prescribed, unless otherwise deemed medically appropriate by the prescriber. [e.g., 14-day supply, etc.]

For Pharmacists:

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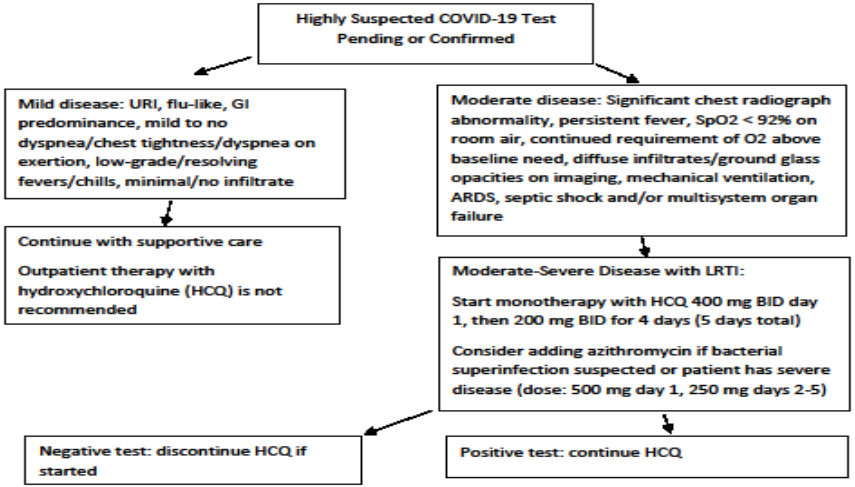
Beacon COVID-19 Therapeutic Guidance



Ongoing HCQ dosing after first dose must be ordered by either Infectious Disease or Pulmonary Intensivists

Recommended baseline monitoring: Electrocardiogram (EKG), ferritin, C-reactive protein, lactate dehydrogenase, Interleukin-6, G6PD at start of therapy

Recommended ongoing monitoring: daily EKG, BMP, CBC, liver function tests

If QTc 500 or greater at any time in therapy, consider stopping any concomitant QTc prolonging medications (e.g. dofetilide) or consider previous underlying conditions such as atrial fibrillation or pacemaker

Pediatric dosing HCQ: 6.5 mg/kg/dose BID day 1, then 3.25 mg/kg/dose BID for 4 days (5 days total)

Consider avoiding use of NSAIDs, steroids (unless needed for other indication)

Remdesivir is currently only available through compassionate use for pregnant patients or pediatric patients less than 18 years of age

3/27/2020 M Koscielski, M Jahangir, M Daoud, C Onunkwo, K DeWeerd

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Understanding Statistics

- By geography, country, age, & risk factors
- We are basing many vital decisions on incomplete or sensationalized data
- A primer on where to look for accurate raw data and how to interpret the data
- Using Italy, S. Korea, and New York City as case studies

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Worldometers.info

Country, Other	Total Cases	New Cases	Total Deaths	New Deaths	Total Recovered	Active Cases	Serious, Critical	Tot Cases/ 1M pop	Deaths/ 1M pop	Reported 1st case
World	784,381	+60,991	37,780	+3,715	165,035	581,566	29,597	100.6	4.8	Jan 10
USA	163,479	+19,988	3,148	+565	5,506	154,825	3,512	494	10	Jan 20
Italy	101,739	+4,050	11,591	+812	14,620	75,528	3,981	1,683	192	Jan 29
Spain	87,956	+7,846	7,716	+913	16,780	63,460	5,231	1,881	165	Jan 30
China	81,470	+31	3,304	+4	75,700	2,466	633	57	2	Jan 10
Germany	66,885	+4,450	645	+104	13,500	52,740	1,979	798	8	Jan 26
France	44,550	+4,376	3,024	+418	7,927	33,599	5,056	683	46	Jan 23
Iran	41,495	+3,186	2,757	+117	13,911	24,827	3,511	494	33	Feb 18
UK	22,141	+2,619	1,408	+180	135	20,598	163	326	21	Jan 30
Switzerland	15,922	+1,093	359	+59	1,823	13,740	301	1,840	41	Feb 24
Belgium	11,899	+1,063	513	+82	1,527	9,859	927	1,027	44	Feb 03
Netherlands	11,750	+884	864	+93	250	10,636	1,053	686	50	Feb 26
Turkey	10,827	+1,610	168	+27	163	10,497	568	128	2	Mar 09

COVID-19 Fatality Rate by AGE:

*__Death Rat__e = (number of deaths / number of cases) = **probability of dying if infected by the virus** (%). This probability differs depending on the age group. The percentages shown below **do not have to add up to 100%**, as they **do NOT represent share of deaths by age** group. Rather, it represents, for a person in a given age group, the **risk of dying** if infected with COVID-19.

AGE	DEATH RATE confirmed cases	DEATH RATE all cases
80+ years old	**21.9%**	**14.8%**
70-79 years old		**8.0%**
60-69 years old		**3.6%**
50-59 years old		**1.3%**
40-49 years old		**0.4%**
30-39 years old		**0.2%**
20-29 years old		**0.2%**
10-19 years old		**0.2%**
0-9 years old		**no fatalities**

*__Death Rat__e = (number of deaths / number of cases) = **probability of dying if infected by the virus** (%). The percentages **do not have to add up to 100%**, as they **do NOT represent share of deaths by age** group.

In general, relatively few cases are seen among children.

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www1.nyc.gov — Private

Daily Syndromic and Case Data Update

The following documents provide information about people confirmed to have COVID-19 in NYC. Check back for possible updates twice daily — at 11 a.m. and 7 p.m.

- **COVID-19 Daily Data Summary: Total Cases** (PDF, as of March 30, 4:30 p.m.)
- **COVID-19 Daily Data Summary: Deaths** (PDF, as of March 30, 4:30 p.m.)
- **COVID-19 Daily Data Summary: Hospitalizations** (PDF, as of March 30, 4:30 p.m.)
- **NYC Emergency Department Surveillance Data** (PDF, through March 29)
- **Percent of Patients Testing Positive by Neighborhood in NYC** (PDF, as of March 30)

Coronaviruses are a group of viruses that can cause illnesses ranging from mild diseases, such as a cold, to more serious illnesses, such as pneumonia. Recently, a new coronavirus was detected that had not been previously seen in humans. The disease, called COVID-19, can be spread from person to person.

There is widespread community transmission of COVID-19 in New York City, meaning the sources of new infections are unknown.

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Coronavirus Disease 2019 (COVID-19)

Daily Data Summary

NYC Health

The data in this report reflect events and activities as of **March 30, 2020 at 4:30 PM.**

All data in this report are preliminary and subject to change as cases continue to be investigated. These data include cases in NYC residents and foreign residents treated in NYC facilities.

NYC COVID-19 Hospitalizations

	Ever Hospitalized Cases	Total Cases
Age Group		
- 0 to 17	72 (10%)	714
- 18 to 44	1448 (9%)	16028
- 45 to 64	2887 (22%)	13344
- 65 to 74	1612 (36%)	4496
- 75 and over	1722 (50%)	3410
- Unknown	0 (0%)	95
Sex		
- Female	3130 (18%)	16920
- Male	4610 (22%)	21120
- Unknown	1 (2%)	47
Borough		
- Bronx	1880 (27%)	6925
- Brooklyn	1661 (16%)	10171
- Manhattan	1075 (18%)	6060
- Queens	2650 (21%)	12756
- Staten Island	465 (22%)	2140
- Unknown	10 (29%)	35
Total	7741 (20%)	38087

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Coronavirus Disease 2019 (COVID-19)

Daily Data Summary

NYC Health

The data in this report reflect events and activities as of **March 30, 2020 at 4:30 PM.**

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NYC COVID-19 Deaths

	Underlying Conditions[1]	No Underlying Conditions	Underlying Conditions Pending	Total
Age Group				
- 0 to 17	1	0	0	1
- 18 to 44	39	2	13	54
- 45 to 64	170	9	37	216
- 65 to 74	167	0	48	215
- 75 and over	327	3	98	428
Sex				
- Female	270	4	70	344
- Male	433	10	126	569
- Unknown	1	0	0	1
Borough				
- Bronx	198	1	16	215
- Brooklyn	153	4	59	216
- Manhattan	90	1	28	119
- Queens	222	8	75	305
- Staten Island	40	0	18	58
- Unknown	1	0	0	1
Total	704	14	196	914

[1]Underlying illnesses include Diabetes, Lung Disease, Cancer, Immunodeficiency, Heart Disease, Hypertension, Asthma, Kidney Disease, and GI/Liver Disease.

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South Korea

Coronavirus Cases:

9,661

Deaths:

158

Recovered:

5,228

Italy

Coronavirus Cases:

101,739

Deaths:

11,591

Recovered:

14,620

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CDC Interim Guidance for Businesses and Employers

- https://www.cdc.gov/coronavirus/2019-ncov/community/guidance-business-response.html
- All employers need to consider how best to decrease the spread of COVID-19 and lower the impact in their workplace. This may include activities in one or more of the following areas:
  - reduce transmission among employees,
  - maintain healthy business operations, and
  - maintain a healthy work environment.

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Businesses & Returning To Work

A Proactive Approach

- Understanding when we don't know "what we don't know". What questions should we be asking—Now?
- A safe workplace
- HR understanding of applicable regulations and policies for those wanting paid time off
- How to document when an employee can't work—who decides? How is it decided? (Families First Act)

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The Families First Coronavirus Response Act

- **Qualified reasons for emergency paid sick time leave:** An employee is unable to work or telework due to a need for leave because the employee is:
  - subject to quarantine or isolation order,
  - has been advised by a health care provider to self-quarantine due to coronavirus concerns, or
  - is experiencing symptoms of coronavirus and seeking a medical diagnosis.
  - ***Pay:*** *Employee's regular pay, up to $511/day and $5,110 over the benefit period.*

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The Families First Coronavirus Response Act

- **Other qualified reasons for paid sick time leave:** An employee is unable to work or telework due to a need for leave because the employee is:
  - caring for an individual who is subject to quarantine or isolation order or has been advised by a health care provider to self-quarantine due to coronavirus concerns;
  - caring for their child if their school or day care has been closed, or the child care provider is unavailable, due to coronavirus precautions; or
  - is experiencing "any other substantially similar condition specified by" the Secretary of Health and Human Services in consultation with the Secretaries of the Treasury and Labor.
  - ***Pay:*** *Two-thirds of the employee's regular pay, up to $200/day and $2,000 over the benefit period.*

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Questions?

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